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SENATE

{ REPORT
No. 2104

DULUTH-SUPERIOR HARBOR, MINN. AND WIS.

JULY 4 (Legislative day, JUNE 27), 1952.—Ordered to be printed

Mr. CHAVEZ, from the Committee on Public Works, submitted the following

REPORT

[To accompany H. R. 8321]

The Committee on Public Works, to whom was referred the bill (H. R. 8321) to authorize the improvement of Duluth-Superior Harbor, Minn. and Wis., having considered the same, report favorably thereon without amendment and recommend that the bill do pass.

The bill is fully explained in the report submitted by the Committee on Public Works of the House of Representatives which is incorporated and made a part hereof of this report:

[H. Rept. No. 2323, 2d Cong., 2d sess.]

The House Committee on Public Works on July 13, 1949, adopted a resolution authorizing the Board of Engineers for Rivers and Harbors to review reports previously submitted on Duluth-Superior Harbor, Minn. and Wis., with a view to determining if it would be advisable to modify the existing project. That review report has been completed, was transmitted to Congress on February 19, 1952, and is designated as House Document No. 374, Eighty-second Congress, second session.

Duluth-Superior Harbor is located at the western extremity of Lake Superior. The harbor comprises the navigable waters of the city of Duluth, Minn., on the north side, and the city of Superior, Wis., on the south side, to the city limits of each.

The harbor is entered either through the entrance to Duluth on the north or Superior on the south, with a connecting channel between the two on the inboard side. At some places the depths are restricted to 22 feet and less, whereas vessels using the harbor require a minimum of 25 feet of draft.

The proposed improvement, which this bill authorizes, includes modification of the existing project to provide for deepening Superior front channel, and deepening the portion of East Gate Basin Channel which has an existing project depth of 22 feet, both to 25 feet. The proposal is subject to certain conditions of local cooperation.

The estimated cost to the United States of the improvements recommended is \$562,500, with no increase in the annual cost of maintenance.

The recommended project has an indicated benefit-cost ratio of 2, and the committee concludes that the improvement is economically justified.

The committee heard testimony recommending the authorization of this project and was favorably impressed by the defense aspects of the proposed improvement. It was pointed out that the Duluth-Superior Harbor handles more iron ore than any harbor in the United States. The average for the past 10 years exceeded 50,000,000 tons annually, or nearly one-half of the entire iron-ore requirements of the Nation. In addition, it should be noted that the total tonnage of all commodities handled in this harbor is second only to that of New York.

The committee was impressed with the fact that the existing Superior front channel presents a definite bottleneck to all carriers. With certain ice conditions, the Duluth entrance may be closed and vessels entering and leaving the harbor because of the reduced channel depths along the Superior front must do so with reduced carrying capacity. Moreover, any accidents that might occur to ships within the Duluth entrance could conceivably require all vessels to come through the Superior front and utilize the Superior Channel, thus not permitting them to carry their full cargo loads of commodities. The committee learned that both of these conditions have existed with the result that ore shipments in particular are curtailed. The improvements considered in this bill will correct that situation.

The improved harbor will provide an adequate turning basin for the larger ore vessels which now have lengths of 500 to 700 feet and are presently delayed in making their departures.

The committee believes the improvement plan embodied in this bill is economically justified and from the standpoint of national defense is vitally necessary in order that a continuous flow of iron ore be maintained via vessel between Duluth-Superior Harbor and the lower Lakes ports throughout the navigation season.

The report of the Board of Engineers for Rivers and Harbors is set forth below:

DEPARTMENT OF THE ARMY,
BOARD OF ENGINEERS FOR RIVERS AND HARBORS,
Washington, D. C., June 6, 1951:

827 (Duluth-Superior Harbor, Minn. and Wis.)

Subject: Duluth-Superior Harbor, Minn. and Wis.

To: The Chief of Engineers, United States Army.

1. This interim report is submitted in response to the following resolution adopted July 13, 1949:

"Resolved by the Committee on Public Works of the House of Representatives, United States, That the Board of Engineers for Rivers and Harbors be, and is hereby, requested to review the reports on Duluth-Superior Harbor, Minn. and Wis., submitted in House Document No. 482, Seventy-second Congress, second session, with a view to determining whether further improvements for navigation are advisable at this time."

This report considers only the deep-draft navigation improvements at Duluth-Superior Harbor which would be most advantageous to the movement of iron ore, with particular reference to the deepening of Superior front channel and the southerly part of East Gate Basin, and the widening of the channel in East Gate Basin at Rices Point. A final report under the authorization will be submitted at a later date.

2. Duluth-Superior Harbor, at the western extremity of Lake Superior, includes Superior Bay, a landlocked body of water separated from the lake by a long narrow sand spit known as Minnesota Point; a number of other bays; and the lower part of St. Louis River. It has several large basins and 17 miles of dredged channels. Two entries 6 miles apart have been provided through Minnesota Point to Superior Bay, the northerly known as Duluth entry and the southerly known as Superior entry. The improved 22-foot Superior front channel extends northwesterly in Superior Bay from the 25-foot Superior Harbor Basin just inside the Superior entry to the 22-foot section of East Gate Basin just southeast of Rices Point. That part of East Gate Basin adjacent to Rices Point has a project depth of 25 feet. It provides access to improved channels in St. Louis Bay on the west. The existing project authorized by Congress provides, in addition to related channels, for: (a) rebuilding the canal piers at Duluth entry with stone-filled timber-crib substructure and concrete superstructure 1,734 feet long and 300 feet apart for 1,250 feet, then flaring to 540 feet apart at the harbor end; (b) replacing the north and south piers at Superior entry with concrete piers 2,096 and 1,584 feet long, respectively, 500 feet apart for 808 feet, then flaring at the harbor end; (c) constructing 4,205 feet of rubble-mound breakwater, 900 feet of concrete pier-heads on stone-filled cribs, and 896 feet of concrete shore revetments at Superior entry, the lake ends being 600 feet apart on the 30-foot contour in pro-

longation of the entrance channel and diverging to 2,100 feet apart at the shore line; (d) a flared lake approach to Duluth entry 32 feet deep, and a channel between the piers 32 feet deep at the pierheads; gradually decreasing to 26 feet at the harbor basin; (e) a depth of 26 feet in the northern part of the harbor basin inside Duluth entry consisting of 201 acres; a depth of 25 feet in the southern portion of the harbor basin and part of the East Gate Basin; a depth of 22 feet in the remainder of East Gate Basin; and a depth of 22 feet in Superior front channel, through Superior Bay, 600 feet in width, extending to Superior Harbor Basin, a distance of 13,200 feet; (f) a flared lake approach to Superior entry 32 feet deep; a channel between the breakwater entrance and the pierheads with a width varying from a minimum of 600 feet to a maximum of 1,100 feet, 32 feet deep at the breakwater entrance, gradually decreasing to 28 feet at the pierheads; a stilling basin of 20 acres, 24 feet deep, inside the breakwater; and a channel between the piers, 28 feet deep at the pierheads, gradually decreasing to 25 feet at the harbor basin; and (g) a harbor basin of 290 acres, 25 feet deep, inside Superior entry. The project was completed in 1935. Cost of the existing project to December 31, 1950, was \$9,990,000 of which \$6,857,000 was for new work and \$3,133,000 was for maintenance. The approved estimate of annual cost of maintenance is \$140,000.

3. The cities of Duluth, Cloquet, and Proctor, Minn., and Superior and Oliver, Wis., comprise the metropolitan district which had a population of 252,000 in 1950. It is a diversified industrial area in which there are about 160 manufacturing establishments employing over 5,000 people. Water-borne commerce of Duluth-Superior Harbor for the years 1940 through 1949 fluctuated between a low of 54,147,695 tons in 1940 and a high of 74,314,646 tons in 1942 and averaged 64,214,093 tons annually. Included in this average tonnage were shipments of 50,042,230 tons of iron ore. In addition to iron ore, the commerce consisted principally of shipments and receipts of grain and iron and steel; and receipts of coal and coke, limestone, and petroleum products. Vessels using the harbor regularly, exclusive of federally operated craft, are typical iron ore, coal, and stone bulk carriers; oil tankers; and self-unloaders. They have lengths from 350 to 678 feet and drafts up to 24 feet. During the period 1940 through 1949, these vessels annually averaged 5,276 trips to and 5,283 trips from the harbor. An oil pipeline has recently been constructed from Edmonton, Canada, to Superior, and oil tankers with drafts up to 26 feet are being constructed for the newly developing crude-oil trade.

4. Local interests, including the Lake Carriers Association, request that Superior front channel and all of East Gate Basin be dredged to a depth of 25 feet and that the channel in East Gate Basin be widened in the vicinity of Rices Point at a depth of 25 feet. Other improvements which they request are outside the scope of this report but they will be considered in later reports. Local interests state that ice conditions practically every spring and often in the fall prevent the use of one of the harbor entries. They also state that the use of one entry could be prevented in the busy summer season by being blocked by a vessel due to an accident. They claim that deepening the Superior front channel would enable vessels to carry capacity cargoes of iron ore and utilize either of the two entries. They claim that widening of the channel at Rices Point in East Gate Basin would provide increased safety and convenience by easing the right-angle turn for vessels using the iron ore and coal terminals located in the inner Duluth-Superior Harbor. They signify a willingness to provide the necessary land for spoil disposal.

5. The district engineer proposes a plan for improvement of the Superior front channel including a portion of the East Gate Basin. It provides for an increase in project depth from 22 feet to 25 feet in order to accommodate the existing and prospective traffic that requires a depth of 25 feet in the event that either the Superior entry or Duluth entry is blocked. He believes the existing project widths are adequate for this portion of the harbor. He states that additional width toward the east in East Gate Basin can be provided by local interests as has been done progressively in the past under permit. The plan for widening East Gate Basin at Rices Point provides for moving the 25-foot project line shoreward a maximum of 170 feet for about 2,000 feet along the channel, all as shown on the map accompanying his report. He estimates the cost of deepening the Superior front channel and the 22-foot portion of East Gate Basin at \$562,500 and of widening the East Gate Basin at Rices Point at \$69,600, a total of \$632,100 for the two parts with no increase in the annual cost of maintenance. He estimates the annual carrying charges at \$21,900 and \$2,700, respectively, for the two parts. The district engineer states that during the navigation season there is an average annual ice blockade at either the Superior entry or the Duluth entry for a period

of 12 days. Due to this condition ore vessels which are compelled to use the 22-foot Superior front channel are unable to load to capacity. He estimates the loss in tonnage due to underloading at 42,300 tons of iron ore for the 12 days of blockade, or four extra cargoes. The cost of a round trip for one vessel between Duluth-Superior Harbor and a typical harbor on the lower Lakes is \$10,875. Therefore, the benefit creditable to deepening the Superior front channel and the southerly portion of East Gate Basin to 25 feet is estimated at \$43,500 for the four extra cargoes. The benefit-cost ratio is 2.0 and the district engineer concludes that the improvement is economically justified. For the improvement at Rices Point, the district engineer states that there are between 6,000 and 8,000 deep-draft vessels passing the point annually. Under existing conditions, navigation by the large vessels is hazardous because of a lack of sufficient maneuvering room on the inside of the turn. The proposed widening of the channel at Rices Point would effectively improve navigating conditions with resulting benefit, considered at least equal to the ensuing annual charges. He considers it to be in the public interest for the United States to deepen the Superior front channel and a portion of the East Gate Basin, and to widen the East Gate Basin at Rices Point. Therefore, he recommends the improvements subject to the provisions that local interests provide necessary land, easements, and rights-of-way for the construction and maintenance of the project when and as required, and hold and save the United States free from damages that may result from the construction and maintenance of the project. The division engineer concurs.

6. Local interests were informed of the recommendations of the reporting officers and given an opportunity to present additional information to the Board. No communications have been received.

VIEWS AND RECOMMENDATIONS OF THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS

7. The Board of Engineers for Rivers and Harbors concurs generally in the recommendations of the reporting officers. It notes that the 22-foot Superior front channel is the connecting link between the Duluth and the Superior portions of the harbor. A depth of 25 feet in this channel to correspond with that depth in the channels and basins in the two portions of the harbor and in the connecting channels of the Great Lakes will permit ore boats loaded to capacity to pass from one part of the harbor to the other. In this manner, capacity-loaded ore boats can use either of the harbor entries. The Board concurs in the view that the improvement is economically justified. The Board believes that the widening of East Gate Basin at Rices Point is justified in the interest of safety and convenience to established navigation. However, the Board is of the opinion that such widening may be accomplished under the existing project without further authorization.

8. Accordingly, the Board recommends modification of the existing project for Duluth-Superior Harbor, Minn. and Wis., to provide for deepening Superior front channel, and deepening the portion of East Gate Basin channel which has an existing project depth of 22 feet, both to 25 feet, generally in accordance with the plans of the district engineer and with such modifications thereof as in the discretion of the Chief of Engineers may be advisable, at an estimated cost to the United States of \$562,500 for new work and no increase in the annual cost of maintenance, subject to the condition that local interests give assurances satisfactory to the Secretary of the Army that they will: (a) Provide without cost to the United States all necessary lands, easements, and rights-of-way for the initial construction, and for subsequent maintenance when and as required; and (b) hold and save the United States free from damages due to the construction and maintenance of the project.

For the Board:

D. G. SHINGLER,
Brigadier General,
Chairman.